# Use your cell phone through your home phone wiring with bluetooth

by **clcktwr** on January 12, 2009

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## Intro: Use your cell phone through your home phone wiring with bluetooth

I bought a new home that was pre-wired for landline phone service. But, because I'm not living in the 1940s, I have no use for an obsolete, overpriced landline. It sure would be nice to use those landline ports, though. Imagine being able to answer or make a cell phone call from anywhere in your house there is a phone jack without having to carry your cell with you.

If you complete this instructable you will be able to:

1. Make and receive calls over your cell phone using regular landline phone handsets (even with caller-id, sort of).
2. Access your voicemail using regular landline phone handsets.
3. Use up to three cell phones with the system at once.
4. Talk even if the power is out using a built-in UPS (optional).

This instructable does NOT require you to hack your phone (software or hardware), break the law, or do anything more technical than simple telephone wiring.
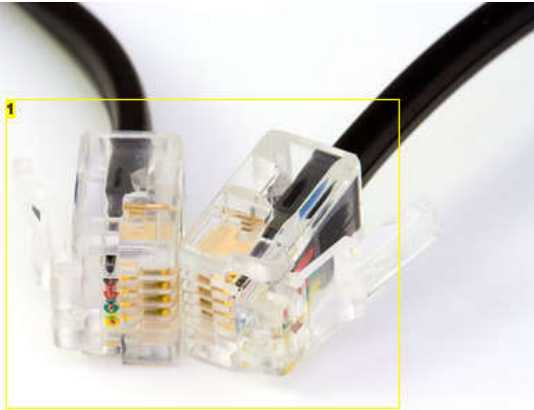
**Image Notes**
1. Watson, come here, I need you. Wear those tight shorts.

## step 1: You will need

1. One or more bluetooth-capable cellphones. If you have an old extra bluetooth-capable phone sitting in a drawer somewhere, get it out, you can use it too.

2. An Xlink Bluetooth Cellular Gateway (this is the 'magic box', you need this).

3. Your home's existing telephone wiring, or supplies to do your own wiring.

4. A small UPS, if you want to be able to use the system if the power goes out (optional).

5. Some simple shelving supplies if you want to do a neat job and not have things tangled up in the closet.

6. Some basic tools, and an RJ45 or RJ11 jack to use as input.

## step 2: How all this works

If you have a bluetooth cell phone, you've probably used a bluetooth headset before. The Xlink gateway works sort of like a souped-up bluetooth headset. Instead of an earpiece, the Xlink has a regular RJ11 phone port that you plug a landline handset into, and connects to your cell phone over bluetooth (acting as a 'gateway', duh). For example:

IF: You receive a phone call.
Headset: beeps through the speaker, and answers the call when you press the answer button
Xlink: rings the phone handset's bell/buzzer and answers the call when you pick up the handset

IF: You want to make a call
Headset: You press a button on the headset which activates your phone's voice dial, speak the name and the phone completes the call
Xlink: you pick up the handset (you will actually hear a dial tone just like a landline phone, this is generated by the Xlink) and dial the phone, the cellphone completes the call. If the landline handset has its own speed-dial or other features, you can use these too

In addition, when you get a call the Xlink not only rings the handset, but also transmits the caller-id info to the handset.. but "wait", you say? "My bluetooth headset doesn't show the caller info" Well, the phone does transmit the info, but your bluetooth headset probably just doesn't have a display to show it.. some of them do, though. However, most of the time the phone will transmit the number but not the caller, so it will just show up as "Xlink" in the name field.. still, you get the number which is better than nothing.
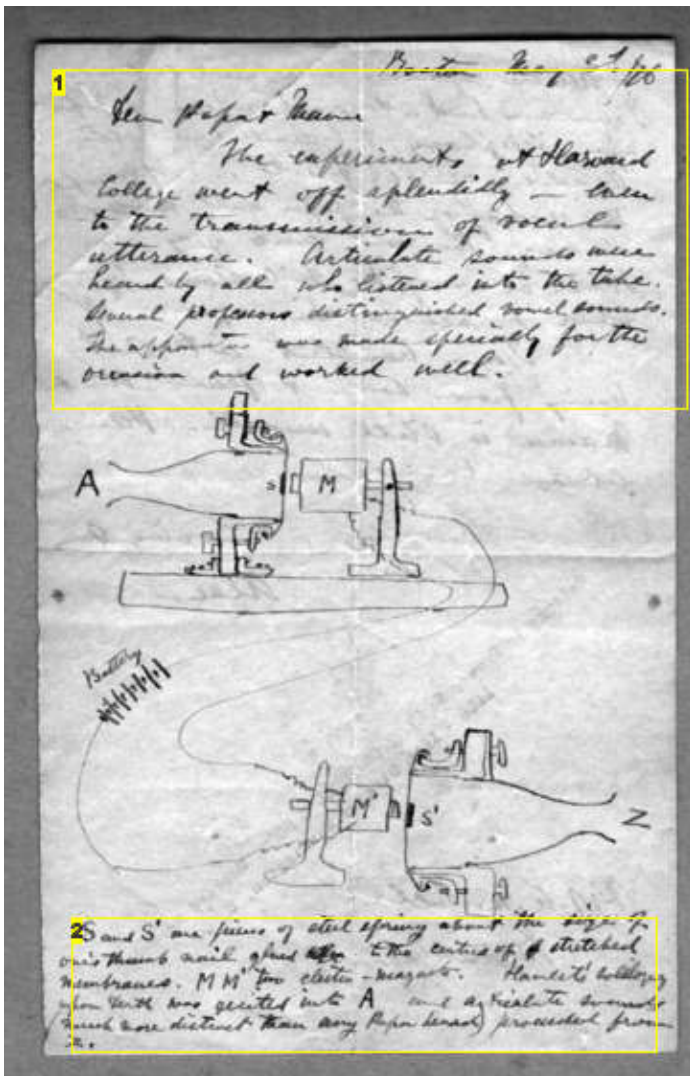
**Image Notes**
1. Letter from Alexander Bell describing his invention.
2. This section describes how to operate a "Prurient Telephonic Gratification Switchboard"

## step 3: I paid for these jacks, I'm gonna use them

So, we have our phone, and the gateway, which is great.. but my house is wired for landline phones.

Obviously I am not going to pay the ridiculous fees for landline phone service just to use these jacks. I haven't had a landline phone since 1994 when AT&T tried to charge me an extra $1 a month for the privilege of NOT having long distance service (yes they really used to do this).

After that I canceled my landline phone, and sent the then-CEO of AT&T a bill for $50 for NOT giving him an erotic massage (a real bargain! Once I start that massage you'll be wishing you'd paid the $50). He never paid up, so I guess if I ever run into him he's gonna feel these magic fingers.

The good news is, we can use these existing jacks with the Xlink! If you have a relatively new home you'll have a junction box where all your phones tie together on either a jumper block or a splitter with the old spade connectors.

If you have the junction box like I have you can see it's easy-peasy. All you need to do is find which cable is the 'incoming' cable (where the phone company would connect to provide service), and put an input jack on it that you can plug the Xlink into.

You'll notice something about these cables.. they are actually cat5 networking cables. At some point I guess the builders decided pulling cat5 cabling was just as easy as pulling regular phone cabling (and cost nearly the same). The funny part about this is that when I asked if they could pre-wire the house for networking, they gave me a blank stare. When I pointed out that they already used cat5 cabling and RJ45 jacks and that all I would need was a patch panel in another room (the wiring closet in my office), he looked at me the way a dog does when you show him a magic trick. In the end I just had them run the cabling where I said and coil it up in the wall so I could add jacks later.

But, in theory I could use these same phone jacks for networking or VOIP phones, although I'd have to replace this dumb jumper block with a small network switch.
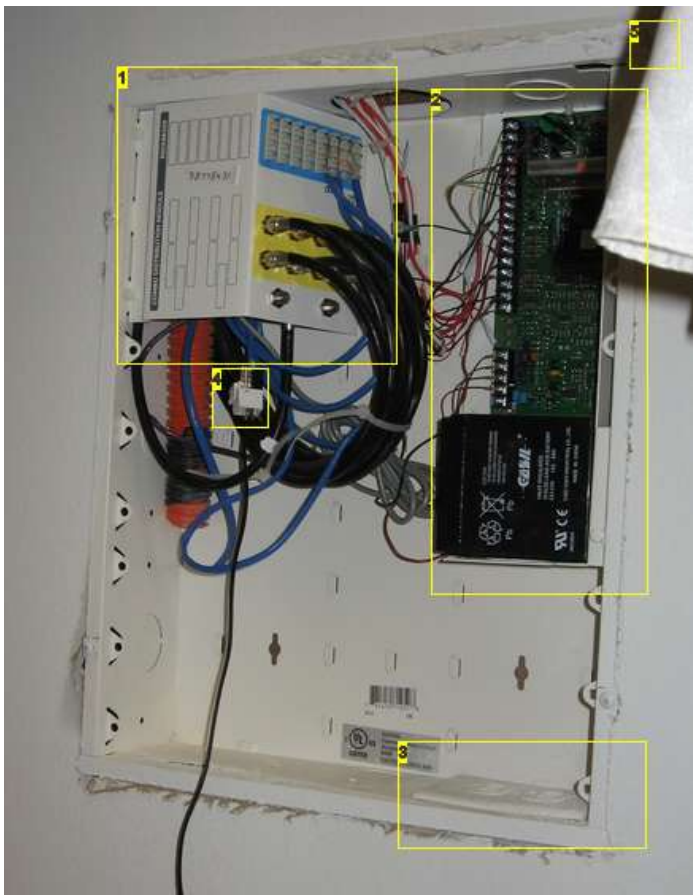
**Image Notes**
1. Jumper block for phone connections, connects all lines together, designed for residential one-line use.

**Image Notes**
1. Jumper block containing both phone connections and cable connections. The 'input' connections are on the other side, the block comes out for easy access.
2. Security system and battery. Probably don't want to mess with this.
3. Convenient outlet in closet box.. we'll use this for power.
4. Completed RJ45 input jack.
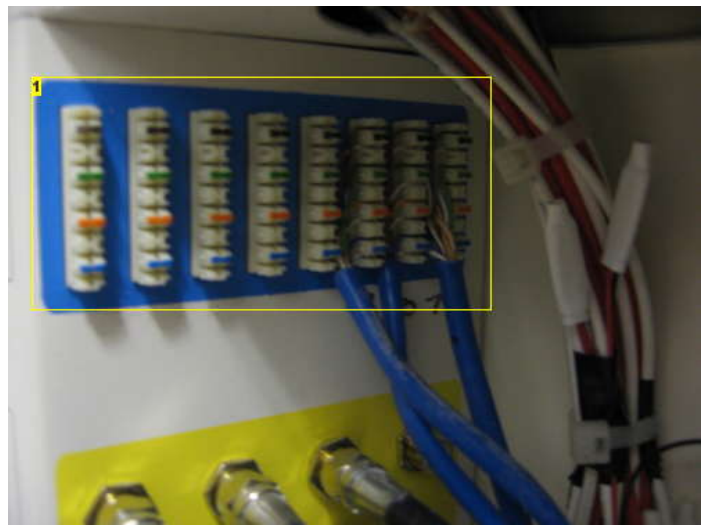5. Frilly dress. Sometimes I like to feel pretty.

## step 4: Putting it all together

Once you have located the 'in' port on your jumper block and wired an RJ45 jack to it you are all set. Actually, you can just add another line with a jack and wire it into the block, since all the block does is tie all wires of "X" type to all other wires of "X" type for the other lines connected to the block.

One thing to realize is that if you DO have landline service already you should NOT plan on wiring your Xlink directly to this block. I'm not sure what would happen but it would not be good, voltage would leak from the Xlink onto the telco's line or vice versa and cause trouble.

I won't cover wiring an RJ45 jack since if you bought a jack it came with detailed instructions and even a small punch-down tool. Just remember that if you screw it up you can just snip off the bad bit and start over a little up the line, so make sure to start with a little more slack than you think you'll need.

Now, we have everything wired up, but it probably looks a mess with wires all over your closet. So, we'll make a simple little shelf system to hold everything and keep it up off the floor.

I made mine from some leftover OSB. I made a simple little shelf to hold a UPS. This is strictly optional, but handy if you want to be able to use the system even if the power goes out. You can get by with a really small UPS, in fact the little one I used was way overkill. It doesn't take much power to run the Xlink and the charger for your cell phone. This one will probably run it for at least a few hours.

I gave the shelf a nice coat of white latex paint so it would blend in better against the wall. Then I staples velcro strips to the shelf to hold everything in place. This takes a bit of test-fitting but works well. The only downside is the Velcro srips are surprisingly pricey for what is basically plastic fabric.

I even added a little RF "reflector" behind the Xlink. Bluetooth is a notoriously short-range protocol. My primary cell phone usually sits on its little charger station about 20' from the Xlink, with a few walls between them. I figured every little bit helps.
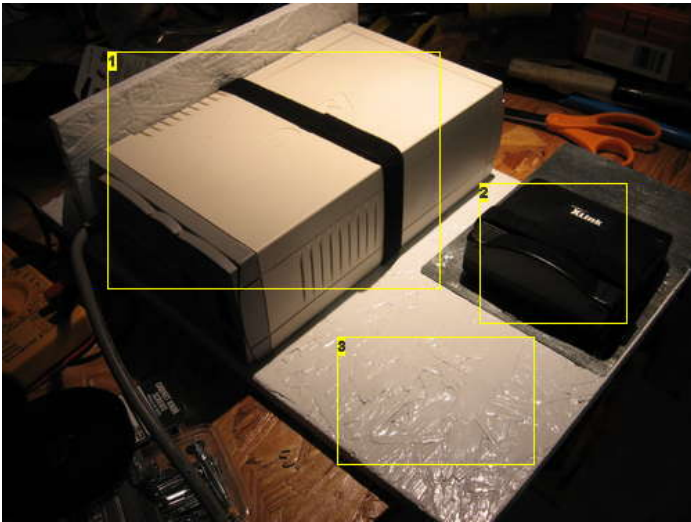
**Image Notes**
1. Small UPS, optional but handy to keep things running during power outages
2. Xlink box
3. Spot for "Secondary" cell phone

**Image Notes**
1. Attach everything with velcro for easy replacement
2. Line to jumper block, to be connected to Xlink
3. "Reflector" for bluetooth signals, probably not needed but every bit helps

**Image Notes**
1. phone/cable jumper blocks
2. RJ45 jack wired to jumper block
3. Final location, I managed to bolt it to a stud

**step 5:** 1.. 2.. 3..

I should point out here what I mean by 'primary' and 'secondary' and such. On the Xlink (the model I have that is) you will have three 'slots' in which you can save connections/pairings to three different phones.

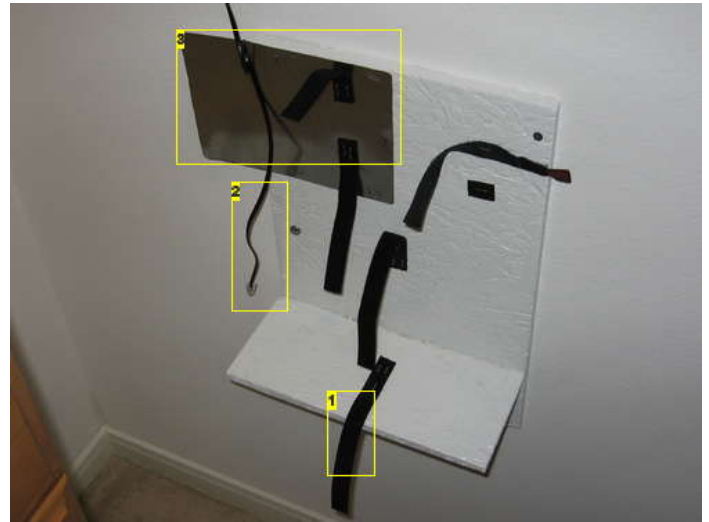This means that by default outgoing calls will go out through cell phone #1 if it is connected. If it is not connected, the calls will go out through cell phone #2, and so on to cell phone #3. You can override this by using a special code before dialing an outgoing call if you want (for example, if #2 has a much better weekend rate you can specifically choose that one when making a call on a Saturday).

Incoming calls to any of the phones will ring on all the wired handsets, and will be identified by slightly different rings (so for example, you will know if someone is calling on your line or your girlfriend's).

The best thing is that once paired, most modern phones will automatically connect to the Xlink when they are in range, so you don't even have to think about it. Assuming, that is, you have bluetooth turned on on your phone.

The down side is, what if no paired phones are in range? What if, for example, your brother is at your place housesitting while you and your squeeze are off (with your phones) in Aruba killing coeds? In an emergency, he is going to grab the closest handset and try to dial but.. no bueno!

The solution is to have a 'permanent' line in slot #3, with the help of a pre-paid phone. You can either buy a pre-paid cell (with bluetooth!) or.. if you have an old bluetooth cell phone like I did, you can probably get a pre-paid SIM from your provider for very little (I use Tmobile, a pre-paid SIM is only $9 plus the cost of minutes). Buy about 30 minutes of time and you are all set. Then keep this cell phone on the same shelf installation as the Xlink. Now when your regular lines are available, you'll use those minutes, but if they aren't you're still covered. As an added benefit, you will start getting all sorts of bizzare calls on this new pre-paid number meant for the previous owner.. mine included mostly bill collectors and a mental health hospital. Whoever 'Derek' is, he has some serious problems.
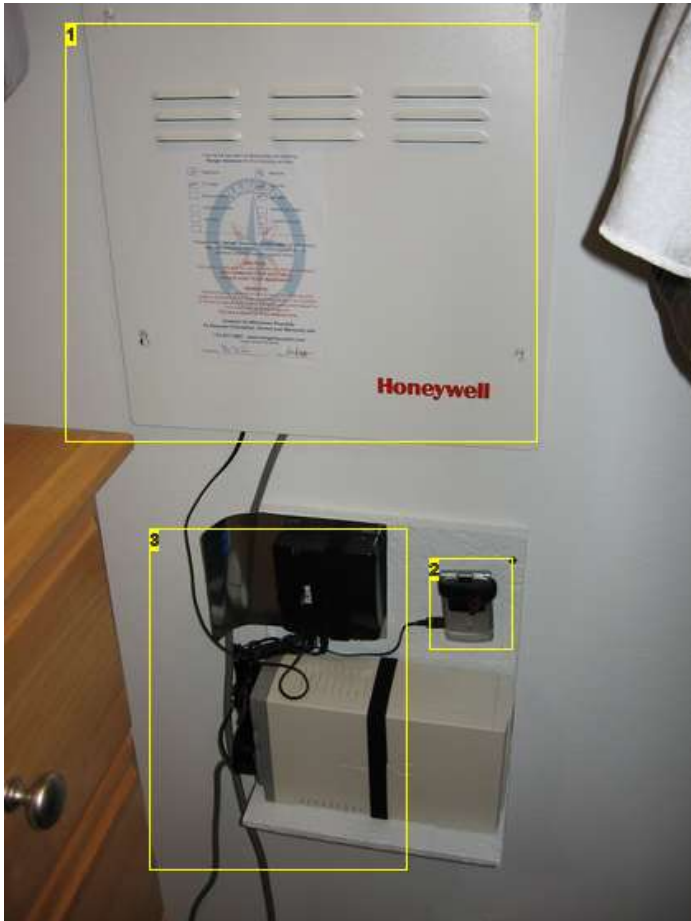


**Image Notes**
1. cover plate replaced
2. pre-paid cellphone, line #3
3. I need to organize the cables a bit, but usually this is all hidden by clothes

Here's some pics of my setup. As you have seen I have a pre-paid phone set up as line #3, really just for emergencies. When I get home from work each day and in range of the Xlink my regular cell automatically connects to it. I usually take off my phone and put it in the little charging stand for the rest of the day. This sits about 20' from the Xlink with a few walls between them. This is about as far as you want your cell phone to get if you intend on using the Xlink a lot.. at this distance the bluetooth link gets a little static-y (compounded by the fact I have poor cell coverage at home). My phone can actually maintain the connection to the Xlink for much further, but calls get very noisy at about 40' and the Xlink disconnects at about 50'. Like I said, bluetooth is short range, so plan accordingly.

My house has three hardline jacks currently, one in the kitchen, one in the bedroom, and one in my office. I don't yet use the office line but I will in the future. It's really nice to have a handset next to the bed, so that when asshHH people call me at 1:30am I can pick up the handset and yell at them without having to get out of bed and go to the dresser for my cell.

I hope I've explained all this well enough. I've tried to explain how all this works to people before but they can't seem to wrap their head around it. Feel free to ask questions.



**Image Notes**
1. my main cell, line #1
2. headset I use when not at home
3. bling bling
4. radioactive



**Image Notes**
1. handset in the kitchen
2. notice.. actually an RJ45 jack but an RJ11 fits in just fine



**Image Notes**
1. bedside handset.. why the @#$% are you calling me at this hour?

# Related Instructables

**Fun Projects Not To Do: Bluetooth Handset** by Auger Duval

**Bluetooth Handgun Handset for your iPhone: iGiveUp** by ManaEnergyPotion

**Quick and easy bluetooth skype handset** by radiorental

**build a beige box/line mans handset** by beigeboxinstructab

**Add a bluetooth adapter to your GPS device** by Sudija

**Adapting a Telephone Handset to a Cell Phone** by hereaftermouse

**Think Geek Retro Bluetooth Handset quick weight mod. (Because heavier is better)** by Veeence

**Battery Backup for Cordless Telephone Base Unit** by solarmaze

# Comments

**46 comments**   **Add Comment**

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**DIYDragon** says:                                                                 Jul 12, 2009. 5:31 PM   **REPLY**

Sweetness! I'll add this to my options. I want extra phones around the house, but don't want to pay for a landline.. I already have so many cell minutes that I don't use! ; (

haha@ $1 not to pay us charge.

---

**Lor** says:                                                                          Jun 16, 2009. 12:52 PM   **REPLY**

Hey thanks so much. I just posted a Q asking how to duplicate a sim card. I thought that was the only way to use my cell phone around the house, since I never have it with me when it rings. This looks really difficult for me -- I'm not very electronically inclined, but I'm going to try it next week. I'll probably be contacting you. I really appreciate you sharing.

---

**Human Being** says:                                                              Mar 24, 2009. 2:13 PM   **REPLY**

cool

---

**lukej** says:                                                                        Mar 8, 2009. 3:31 AM   **REPLY**

In australia landlines are WAAAAYYYY cheaper then mobile or cell phones.
So I probably wouldn't use this

---

**thepaul1993** says:                                                              Mar 10, 2009. 5:25 AM   **REPLY**

yay a fellow aussie,

---

**cornflaker** says:                                                              Mar 17, 2009. 4:59 AM   **REPLY**

An yet another lol

---

**cornflaker** says:                                                          Mar 17, 2009. 4:59 AM   **REPLY**

I wish we could edit posts on here... *An/And

---

**greatscotmagic** says:                                                          Mar 8, 2009. 11:32 AM   **REPLY**

Great Instructable!
What did you use for your RF "reflector?"
will it work behind a wireless router to increase the range?

Thank you.

---

**static** says:                                                                      Mar 6, 2009. 8:23 PM   **REPLY**

While circumstances will vary, in my location I expect the POTS to be functioning after the cellular services tank. For that reason I'll retain POTS. In rural areas one of the problems is if cell phone customers aren't soon required to pay their share of 911 fees, the 911 system will be in jeopardy because of a lack of funding. Anyway your instructable outlines an option, that other can consider. Including long distance calls my monthly POTS runs less than $35. I grew up before the reach out and touch someone generation, so telephones remain nothing but a handy appliance for me.

---

**hazlett** says:                                                                 Mar 6, 2009. 1:12 PM **REPLY**

Well, what I have done is plug a 4 station cordless phone into the MagicJack. Works like a charm....usually....there have been some instances of outages but generally it is working fine.

You do need to have the computer running 24/7 but what I did was buy a cheap, cheap, "thin client" running XP and I use that. Cheap computer, cheap phone...what more can a miser ask ??

Oh, MagicJack also has 911 campabilites, something that many VoIP phones do not provide.

---

**hazlett** says:                                                                 Mar 5, 2009. 5:41 AM **REPLY**

I have used the XLink and unless it has gotten better it is a piece of crap. I now have MagicJack for my landline.....check it out.....

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**greatscotmagic** says:                                                          Mar 6, 2009. 12:10 PM **REPLY**

Could you explain how to use the Majicjack with the landline?
Magicjack looks very inviting, but I am afraid that I would be tied to the computer.
Thanks.

---

**Royalblu** says:                                                                Mar 6, 2009. 6:18 AM **REPLY**

I have a similar system made by Motorola. It works with their cordless phone system. I bought the Bluetooth adapter and 2 cordless phones for $150 at Sams club over a year ago.
The system works pretty good. Reception would be better if the cell phone we are using got better reception.

---

**steinr98** says:                                                                Mar 5, 2009. 8:53 PM **REPLY**

I tried this unit- it didn't work for me as our 2 wireless phones were 2.4 Ghz and the unit is also- had terrible sound and echos. Also our 2 Verizon phones state do not use the phone while it is on the charger- So not it would be a pain to keep charging and unplugging a home phone. I also tried a Panasonic phone made with bluetooth in it- it kept dropping the bluetooth connection. I'm back tothe land line-ugggg!

---

**mrmucox** says:                                                                 Mar 2, 2009. 9:17 AM **REPLY**

Just as a warning, plugging an RJ-11 cord into an RJ-45 Jack, can cause damage to the RJ-45. If it's only ever going to be a phone jack, it's no problem, but it can permanently bend some of the connectors in the jack. We had a rash of new data jacks test bad in a new installation before we realized the tone generator we were using had an RJ-11 and it was ruining the data jacks.

---

**AF-Geek** says:                                                                 Mar 5, 2009. 5:55 PM **REPLY**

@mrmucox: Thanks to both you and @kP! While this is a cool instructable, I will probably never use it. But, your tip about the RJ-11/RJ-45 problem is a great nugget of knowledge!

---

**kP** says:                                                                      Mar 5, 2009. 7:54 AM **REPLY**

I was about to enter the same comment when I found this one - AGREED: plugging RJ11 into RJ45, while electrically possible, is mechanically not recommended - the pins of the jack will be compressed beyond recovery.

There are these cords: RJ45 male on one end (for the jack) and RJ11 male on the other (for the device):
http://techstore.doit.wisc.edu/product.asp?login=P&itemnum=C17154

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**b2gills** says:                                                                 Mar 6, 2009. 8:12 AM **REPLY**

You could just get an RJ45 connector and crimp it on instead of the existing RJ11.

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**vanmankline** says:                                                             Mar 5, 2009. 8:29 AM **REPLY**

Nice instructable! I found it while researching gateways for my grandfather. Was there any reason for selecting that model over another? Are there any other brands you suggest?

P.S. Your lucky that your builder used cat5 (pretty much the new standard). However, you do not need that second wire you had installed and coiled, if you want to use just basic 10/100 Ethernet. It is slower than gigabit's 1000 Mb/s, but only needs 2 pairs to work (leaving the other 2 for phone lines). Having multi-port faceplates helps to keep a cleaner look with fewer holes in the walls.

---

**ColumbusGEEK** says:                                                            Mar 5, 2009. 5:11 AM **REPLY**

I admit, this is very cool.

Very close to a advertisement, but very cool. :)

---

**lordofthedonuts** says:  Mar 4, 2009. 2:09 AM **REPLY**
nice 'ible!

**scavanger** says:  Mar 3, 2009. 10:31 PM **REPLY**
Nice 'ible

I have had the xlink for a few months now, works good, but my install does not look as classy as yours.

**Fixerdad** says:  Mar 3, 2009. 6:31 PM **REPLY**
I'll have to second ClayOgre on the land line thing. My DSL, local and long distance are about the same cost as a monthly contract, which I would never make full use of, since talking does not equal work for me. but more important, my land line is independantly powered, and I like the redundancy that it adds to my Tmobile prepaid, (which also costs me less in a year than about 3 mos. of contract.) Again I digress. The real question is if/since your land line is independantly powered, even though you don't have service, can you still call 911(on land line) if the feces finds the fan in your vicinity? Cool 'ible for those who've cut the cord however.

**ClayOgre** says:  Mar 3, 2009. 1:12 PM **REPLY**
"**I have no use for an obsolete, overpriced landline.**

*Hmm...I'm the exact opposite. I have a prepaid cell phone which I hardly use (mostly for "emergencies"), and a landline that I don't use much, but the rest of the family does. However, I am on the internet a lot and we do have DSL, which is just a hair cheaper than cable internet service, the last time I checked. I think we pay around $35 or so for monthly landline service...which is cheaper than regular cell phone service, at least the last time I checked the price of montly cell phone service.*

*I can't imagine paying for wireless internet broadband, or cell phone service when I'd use probably less than fifteen minutes a month. (I hate telephones).*

**cyrozap** says:  Mar 1, 2009. 5:25 PM **REPLY**
This... is... AWESOME! It's just like the skype home phone system , but you can take it with you AND have 911 service! Epic win! Nice 'ible.

**clcktwr** says:  Mar 2, 2009. 4:52 PM **REPLY**
Some day I'd like to integrate this with Skype (or some other SIP or VOIP software), I've got a class 1 bluetooth dongle for my computer that should do the job. Presumably I could get it to talk to the Xlink, but so far the holdup has been the pitiful and ever-changing bluetooth support on Linux.

**cyrozap** says:  Mar 2, 2009. 7:39 PM **REPLY**
If you clicked the link, you could see how it's done sans-XLink. I bet you could just use a nettop, or one of those amazing Sheeva plugs ($100). Google the sheeva plug.

**frollard** says:  Mar 2, 2009. 4:03 PM **REPLY**
Just make sure your address is noted near each handset - not for you, but for when your friend has to call 911 because you're choking, and the 911 operator only gets an address of "the cel tower you bounced off of" :)

Great instructable, I don't have a landline...just a cel phone..This could be interesting for me.

**cyrozap** says:  Mar 2, 2009. 7:34 PM **REPLY**
My phone (an Env2) has a feature that allows it, if you call 911, to give them your exact location based on the same principles of GPS but on land (radio triangulation). This is a lot more like the LORAN system (now largely obsolete, due to GPS).

**frollard** says:  Mar 3, 2009. 9:56 AM **REPLY**
I'm a 911 operator. :)

the PHONE ITSELF has the technology. The radio towers have the technology to accept the digital signature of gps coords, or the ability to track via loran-style time-dilation distance measurement...sadly, we're not like CSI, or NCIS where we can track calls:

Two reasons, 1 - funding for the equipment on the emergency dispatcher end - its very very expensive
2 - big brother legislation. The law in most places in north america say 'You may not, even with the phone's permission, take the coordinates of a cel phone over wireless. Your phone has a gps in it, it sends the coordinates which are stripped, and not forwarded to the 911 PSAP.

Fact of the matter - I hate it. We get a lot of calls that would be treated much faster and more efficiently with automated gps. My phone (Razr 1st gen) has gps, the LG 555 I had before that (at least 6 years ago) had it as well. It's been around a LONG time - and it goes unused.

**JoeMenthol** says:  Mar 3, 2009. 8:38 PM **REPLY**
This must vary from state to state. In my area, our dispatch can (if needed) provide latitude and longitude for cell phone callers to responding officers/EMS. Can usually put them within 50 feet of the caller or so.

**frollard** says:                                                                    Mar 4, 2009. 6:15 AM  **REPLY**

Indeed - your mileage may vary;

even according to several research projects I did for this - I can safely say 'most' places cant :(

We can as an emergency agency call the phone provider, and do a trace, often they can only give us the tower location, and the angle (inaccurate) to degrees, but not distance. Very useful for people on a highway - we use the angle to figure which jurisdiction they're in, but not their exact location (as it could bounce funny off a cliff, tree, or any other object)

---

**cyrozap** says:                                                                    Mar 3, 2009. 6:38 PM  **REPLY**

1 - The equipment: DIY FTW.

2 - Wow. Thank you, pointless laws, for lengthening the response time of emergency responders.

---

**_soapy_** says:                                                                    Mar 19, 2009. 4:25 PM  **REPLY**

re: 2. You really want the police and hence everyone and anyone to be able to track you everywhere you go without your knowledge? Think about that for a second.

The UK has that capability, and those laws (along with many, many other bad laws) and is rapidly becoming a police state. Just ten years ago, this couldn't have happened. Now we have not even the right to protest about it.

---

**acaz93** says:                                                                    Mar 1, 2009. 11:28 PM  **REPLY**

w00t you have a tritium keychain ( may i ask , dealextreme.com?)

---

**clcktwr** says:                                                                    Mar 2, 2009. 7:41 AM  **REPLY**

I'm not sure where it came from, it was a gift many years ago. Still glowing strong!

---

**acaz93** says:                                                                    Mar 2, 2009. 4:21 PM  **REPLY**

:p forgot to say Nice 'ible

---

**bwpatton1** says:                                                                    Mar 2, 2009. 2:14 PM  **REPLY**

I was about to ask the same question,
they also sell them a Unitedneclear.com

---

**joejoerowley** says:                                                                    Mar 2, 2009. 3:49 PM  **REPLY**

Sell them for $10 at dealextreme.com

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**bwpatton1** says:                                                                    Mar 5, 2009. 1:04 PM  **REPLY**

Actually they are 8.50

---

**bwpatton1** says:                                                                    Mar 3, 2009. 2:10 PM  **REPLY**

I just checked that website out and it was AWSOME and CHEAP too, how is that even possible?

---

**joejoerowley** says:                                                                    Mar 3, 2009. 7:10 PM  **REPLY**

IDK. Shipping takes a while though. 2 weeks. I have been waiting for 20 days for may latests order to come in. I guess thats what you get of $0.01 shipping ;)

---

**shawnlogan** says:                                                                    Mar 2, 2009. 2:00 PM  **REPLY**

awesome. just one problem; I would have to save up for that Xlink Bluetooth Cellular Gateway (heafty pricetag) and in the meantime still pay for a landline. So I'll have even less money for a few months. ugh.

---

**Sonicblaze** says:                                                                    Mar 2, 2009. 12:11 PM  **REPLY**

GE also makes a device like your XLink, except it's cheaper. I havent tried it (yet...damn money), but it works exactly like the XLink.

http://www.home-electronics.net/ge/pc/viewPrd.asp?idcategory=19&idproduct=158

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**zjharva** says:

This is really cool! never knew you could do this. that $1 phone charge in 1994 is about what comcast digital voice costs.

Mar 2, 2009. 11:07 AM **REPLY**

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**cyrozap** says:

Yes, I get how it works.

Phone talks to XLink by bluetooth, XLink is wired to home phones. When cell rings, wired phones ring. The XLink is just the bridge to make those connections.

Mar 1, 2009. 5:31 PM **REPLY**

---

This is really cool! never knew you could do this. that $1 phone charge in 1994 is about what comcast digital voice costs.